Space Weather Forecast

Issued on Thursday 9 January 2025 at 12:50 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

---

Space Weather Forecast Headline: Chance of isolated Moderate class flares.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Moderate activity during the last 24 hours with a flare peaking at 09/0026UTC observed from AR3947 the largest region on the disc. There are now ten sunspot regions on the visible disc. The only region currently of note is in the northwest, which has been responsible for the majority of any recent activity. With the recovery of some of the high resolution SDO imagery, it can now be seen that this region only has some weak magnetic complexity. The other regions on the disc remain small and simple.

No Earth-directed Coronal Mass Ejections (CMEs) were observed, although the recent lack of SOHO coronagraph imagery combined with large gaps in STEREO coronagraph imagery mean this is more uncertain than usual.

Solar Wind / Geomagnetic Activity: Solar winds declined to background levels, then possibly followed by a weak fast wind onset. Wind speeds were initially slightly elevated at 450km/s but declined to background around 380 km/s. The Interplanetary Magnetic Field was mostly weak, rising a little after 09/0800UTC to moderate. The north-south component was weakly variable, but became more southward directed after 09/0845 UTC. Geomagnetic activity was Quiet (Kp 1-2).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was at background levels.

Four-Day Space Weather Forecast Summary

Solar Activity: Low to Moderate with an ongoing chance of isolated Moderate-class flares.

Solar Wind / Geomagnetic Activity: There are thought to be no Earth-directed CMEs, although this is more uncertain than usual due to lack of coronagraph imagery. Solar winds are showing signs of some weak disturbance, perhaps an early onset of a weak coronal hole fast wind. Wind speeds from this feature are likely to be not much above 400 km/s.

Geomagnetic activity is expected to be mostly Quiet to Unsettled, perhaps with the odd Active interval Day 1 or Day 2 (09-10 Jan) with any high speed stream influence.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 370 900 0100 Email: enquiries@metoffice.gov.uk

© Crown Copyright 2025. All Rights Reserved.

Energetic Particles / Solar Radiation: Solar radiation is expected to remain near background levels, with only a slight chance of rising in response to any notable flares.

Geomagnetic Storms

Geomagnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	5	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X-Ray Flares

X-Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 (M Class)	No	50	50	50	50
Very Active	R3-R5 (X Class)	No	10	10	10	10

Solar Radiation Storms (High Energy Protons)

Radiation Storms Probability (Exceedance)	Level ($cm^{-2}sr^{-1}s^{-1}$)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	10	10	10	10
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 370 900 0100 Email: enquiries@metoffice.gov.uk

© Crown Copyright 2025. All Rights Reserved.